

## REMARKS

By this submission previously pending claims 1 and 8 are amended, and original claims 2-7 and 9-12 remain pending. No new matter is introduced by the now submitted amendments.

It is requested in view of the submitted amendments and the following discussions that all now reported rejections, prospective rejections and objections be reconsidered and not repeated in any further action issued for this application.

The claim rejections addressed here are premised from new grounds over those reported in the action mailed August 10, 2005, because the Amendment/Response filed October 11, 2005 set out arguments that are reported as being persuasive in overcoming the prior reported rejections.

### Specification Objections

It is reported that the disclosure at page 8, line 4, includes an “informalit[y]” in that element number “62” should be “60”. This objection is believed to be moot in that the same objection was set out in the action mailed August 8, 2005, and was addressed by a specification amendment filed November 10, 2005. Specifically, the subject line of specification disclosure was amended to read: “attached to the ends of cylinder 60.” To facilitate resolution of this matter, a copy of the Amendment/Response as filed November 10, 2005 is attached, and attention is invited to page “5 of 12” of the filed document.

In view of these facts, it is submitted that the objection has previously been overcome, and its reassertion now is traversed.

### Claim Rejections – 35 USC §103

Rejections under 35 USC §103(a) are reported in the Office action as being directed to:

- (i) claims 1, 4, 8, 11 as being unpatentable over U.S. Patent 6,777,699 (“Miley et al.”) in view of U.S. Patent 4,602,161 (“Whealton et al.”); (ii) claim 2 as being unpatentable over Miley et al. in view of Whealton et al. as applied to claim 1 and further in view of U.S. Patent No. 6,761,796 (“Srivasta et al.”) and U.S. Patent No. 5,198,677 (“Leung et al.”); (iii) claim 3 as being

unpatentable over Miley et al. in view of Whealton et al. as applied to claim 1 and further in view of U.S. Patent No. 6,511,575 (“Shindo et al.”); (iv) claim 5 as being unpatentable over Miley et al. in view of Whealton et al. as applied to claim 1 and further in view of JP 2000133497A (“Hashimoto”); (v) claim 6 as being unpatentable over Miley et al. in view of Whealton et al. and Hashimoto as applied to claims 1 and 5 and further in view of U.S. Patent No. 5,763,851 (“Forster et al.”); (vi) claim 7 as being unpatentable over Miley et al. in view of Whealton et al. as applied to claim 1 and further in view of U.S. Patent 6,228,176 (“Chu et al.”); (vii) claims 9 and 10 as being unpatentable over Miley et al. in view of Whealton et al. as applied to claim 8 and further in view of U.S. Patent No. 5,581,156 (“Roberts et al.”); (viii) claim 12 as being unpatentable over Miley et al. in view of Whealton et al. as applied to claim 1 and further in view of admitted prior art, U.S. Patent No. 6,464,891 (“Druz et al.”) and U.S. Patent No. 6,511,575 (“Shinto et al.”); and (ix) Claims 1, 4 and 8 as being unpatentable over Miley et al. in view of admitted prior art. These rejections are believed to be overcome in view of now submitted claim amendments and the following discussions.

Of the claims cited in the Office action as being subject to obviousness rejections, only claim 1 is independent. All other obviousness rejections are reported as being directed to claims that are dependent from this base independent claim. Therefore, if pending independent claim 1 recites allowable subject matter, all other currently obviousness rejected claims dependent from this claim also recite allowable subject matter.

Dependent claims are nonobvious under 103 if the independent claims from which they depend are nonobvious. (Citations omitted, *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988)).

Attention, accordingly, now will be directed to base independent claim 1.

Such exclusive attention here to addressing obviousness rejections directed to independent claim 1 is not to be later asserted as having resulted in any admission made by inference or otherwise as to prior art status or substance of asserted references or arguments reported in the action as being directed to any dependent claim. The exclusive attention to addressing independent claim 1 reported rejections solely is premised from applicable law as is discussed above.

Claim 1 is reported rejected as being unpatentable both over Miley et al. in view of Whealton et al. (Office action, p. 3), and also as being unpatentable over Miley et al. in view of “admitted prior art.” (Office action, p. 11) It is submitted that these two asserted bases for rejections are overcome in view of now filed amendments for claim 1 and below discussions.

Beginning with the asserted admission of prior art premised rejection, it is reported in the action at p. 12 that: “Admitted prior art teach an apparatus that uses a converter (Page 2, lines 13-20) mounted in a plasma source, for generating negative ions by surface ionization of positive ions and that is negatively biased with reference to plasma and ion source walls.” The filed application specification does indeed at the “Background of the Invention” section disclose “[o]ne method of producing negative ions in a plasma ion source is to include a converter in a source of positive ions for surface production of negative ions.” (Application specification, p. 2, lines 13-14). These disclosures, however, are for a process or method of using a “converter” to produce negative ions. The disclosures are not directed to structure other than some general discussions of including “a converter in a source of positive ions” and biasing a converter “to about 0.5-1 kV negative potential with respect to the ion source walls and plasma.” Further, the application specification discloses that:

RF surface sputtering ion sources have been built, but they use cesium to increase the negative ion yields to acceptable levels, and cesium is a difficult material to use. Thus a non-cesiated RF sputter ion source would be desirable. (Application specification, p. 2, line 22, to p. 3, line 2).

In contrast to these substantively method disclosures, the now submitted amendments for independent claim 1 in relevant part recite:

1. A plasma ion source for producing negative ions, comprising

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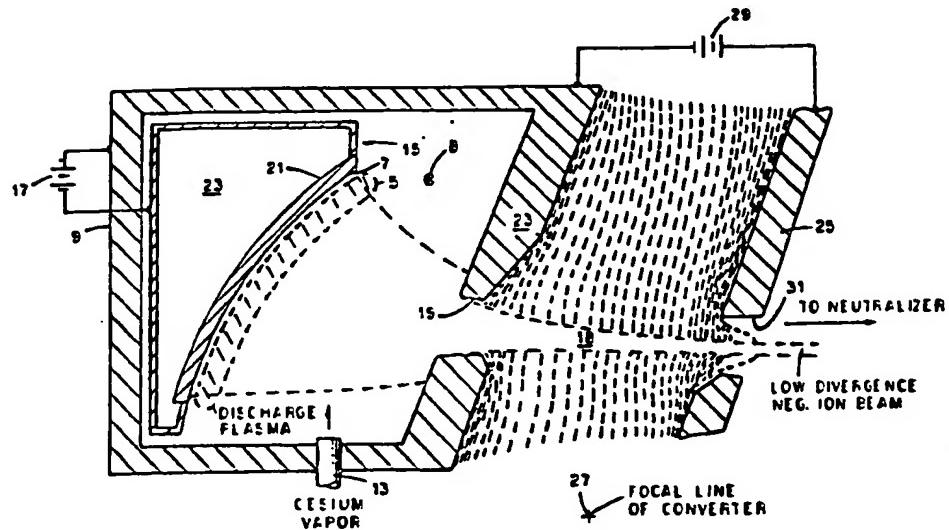
a converter mounted in the source chamber and negatively biased with respect to the source chamber and plasma, which is a non-cesium containing plasma, the converter being made of a non-cesium containing material and including a converter surface shaped and positioned in the

source chamber so the positive ions impact the converter surface and by sputtering surface ionization produce negative ions substantially directed to be moved on or parallel to a longitudinal axis of the source chamber toward an extraction aperture.

Application specification disclosures supporting these amended structural recitations include Figures 5 and 10 and associated written disclosures such as p. 7, lines 16-22, and p. 10, lines 16-23.

As such, amended claim 1 converter structure recitations are not admitted prior art. In fact reference to asserted Whealton et al. also shows failure of this patent to disclose or suggest the claim 1 recited structures.

The Whealton et al. patent discloses "an improved negative ion source of the type in which negative ions are produced in a conventional manner by surface ionization of identical species positive ions formed in an electron arc discharge plasma positions in front of a cesiated converter surface." (col. 1, lines 37-42). Specifically, the Whealton et al. disclosed structure is shown in the sole figure of this patent.



Whealton et al. teachings away from amended independent claim 1 recited structure include use of cesium containing plasma, cesium containing converter material and converter surface 7 shape and source housing 9 structure that do not have an arrangement and orientations for producing ions to be “substantially directed to be moved on or parallel to a longitudinal axis of the source chamber toward an extraction aperture.” In fact, Whealton et al. actually teach away from these last listed structural distinctions. Specifically, Whealton et al. disclose:

The converter plate 21 extends axially, perpendicular to the page and is mounted at an angle relative to the exiting negative ion beam path 18. The angle at which the converter plate is mounted depends upon the strength of the magnetic field **B** (typically 1300 gauss), the initial negative ion ejection velocity which is controlled by the difference in the plasma 5 and the converter 7 potential, the shape of the plasma sheath 5, and the applied electrostatic shape. To fully illustrate this arrangement, the converter plate surface 7, the extraction electrode 23, an acceleration electrode 25 and the position of the converter surface focal line 27, which extends perpendicular to the page, are all drawn to scale. The focal line 27 corresponds to the geometric axis of the constant radius cylindrical section converter surface 7. (col. 2, line 67, to col. 3, line 15).

So, the Whealton et al. disclosed source housing 9 and converter surface 7 indeed do not have any longitudinal axis relationship with respect to an extraction aperture. Instead, these Whealton et al. structures have the disclosed converter surface 7 shape, and the position of that shape is dependent on a magnetic field **B** strength and an electrostatic field. The Whealton et al. converter surface 7 shape and its position do not in and of themselves direct negative ions to an extraction point. Further, there is a disclosed linear extension of converter surface 7 that is perpendicular to the opening of slit 31 (col. 2, line 67, to col. 3, line 1). The Whealton et al. disclosures therefore teach away from now amended independent claim 1 recited structures.

Accordingly, it is submitted that the reported rejection of claim 1 and its dependent claims are overcome in that Whealton et al. disclosures teach away from claim 1 now recited structures. Office action reported assertions concerning Miley et al. are not addressed here in view of the fact that reported rejections are overcome by other considerations. These circumstances are not to be asserted as resulting in any explicit or inherent admissions as to Miley et al.

Double Patenting

Provisional obviousness-type double patenting rejections are reported as in part being premised from U.S. Patent 6,768,120 ("Leung et al."). (Office action, p. 12 et seq.). These rejections explicitly are reported as being "provisional" (Office action, p. 15). Such provisional rejections, it is submitted, now are rendered moot in view of the filed claim 1 amendments and above discussions.

CONCLUSION

In light of the above discussions, it is believed that the amended claims and previously pending claims are in condition for allowance and a notice of the same is requested. Should the Examiner have any question, request or suggestion, he is invited to contact the undersigned attorney at the telephone number set out below.

Dated: July 21, 2006 Respectfully submitted,

By

  
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